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Amendment dated October 17, 2005
Response to Office Action dated June 16, 2005
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Art Unit: 2825
Examiner: Dinh
Docket No.: AUS9 2003 0203 US1

REMARKS/ARGUMENTS

Claims 1-20 were pending and examined. The Examiner objected to claims 11 and 17. The Examiner rejected claims 1-20 under 35 USC § 102(e) as being anticipated by Kimura *et al.* (U.S. Patent No. 6,440,780), hereinafter "Kimura". The Examiner rejected claims 1, 7, and 14 under 35 USC § 102(e) as being anticipated by Palermo *et al.* (U.S. Patent No. 6,442,739), hereinafter "Palermo". In this response, Applicant has amended claims 1, 3, 6, 7, 10, 11, 14, 16, and 17 and canceled claims 2, 8, 9, and 15. Applicant wishes to thank the Examiner for taking the time to discuss this amendment with Applicant's undersigned representative. It was the undersigned representative's belief that consensus was reached during the discussion. Specifically, the undersigned believes it was agreed during the discussion that incorporating the limitations of claims 2, 9 (and its parent claim), and 15 into independent claims 1, 7, and 14 respectively would overcome the pending rejections and place the case in condition for allowance. If the Examiner's understanding of the discussion differs, Applicant would encourage and welcome a clarifying phone conference.

Claim Objections

The Office Action objected to informalities in claims 11 and 17. In response, Applicant has amended claims 11 and 17 along the lines helpfully suggested by the Examiner. Applicant wishes to thank the Examiner for diligently reviewing the application and discovering these errors.

Claim rejections under 35 USC § 102(e)

The Examiner rejected claims 1-20 under Section 102(e) as being anticipated by Kimura.

In response to the rejection of independent claim 1, Applicant has amended claim 1 by incorporating the limitations of originally submitted claim 2, which is now canceled. In this invention for a method and system of designing integrated circuits, Claim 2 as originally submitted recited a limitation including constraints on the placement of latched objects and non-latched objects. Specifically, claim 2 recited placement constraints that limit the allowable

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difference between the center of mass for non-latched objects and the center of mass for latched objects.

The Office Action rejected claim 2 as originally submitted indicating that its limitations were anticipated by Kimura. Applicant respectfully traverses the anticipation rejection of claim 2 as originally submitted and claim 1 as amended herein. Kimura does not teach either explicitly or inherently an integrated circuit design placement constraint that limits the difference between a center of mass for latched objects and a center of mass for non-latched objects.

Kimura is a design layout invention teaching a technique for reducing clock skew by dividing a design down into "clusters" and then adding buffering elements, where needed, to equalize the clock skew for different clusters. Referring to FIG 4 of Kimura, for example, the depicted design includes a group of elements A06 that includes a large number of latched elements (flip flops) A03, a second group of flip flops A07 that includes a single flip flop A04, and a third group of flip flops A08 that includes an intermediate number of flip flops A05. Circuit groups A06 and A07 are referred to in Kimura as "gated circuits" because of the presence of combinational elements A01 and A02 between the flip flops and the clock source CS. In contrast, the flip flops A05 in flip flop group A08 are connected directly to clock source CS. Kimura is concerned with modifying the design to ensure that all of the clock skew is minimized.

As seen in FIG 5 of Kimura, a first aspect of Kimura involves introducing a buffering element B01 between the clock source CS and flip flop group A08 so that circuit groups A06, A07, and A08 are all "displaced" from the clock source CS by a combinational element or a buffering element. In addition, Kimura includes adding additional buffering elements (D01, D02, and D03), as seen in FIG 7, to better equalize the number of flip flops each buffering element drives. In FIG 9, Kimura then adds additional combinational elements (F01, F02, and F03) so that all of the combinational elements drive a roughly equivalent number of buffering elements. In this manner, Kimura attempts to minimize the clock skew experienced by the flip flops.

Applicant acknowledges that there is language in Kimura that is superficially related to some of the language in claim 2 when Kimura describes the placement of buffering elements that are added to a design. In describing FIG 34B, for example, Kimura indicates that buffering

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elements are placed in the "center of gravity" of their respective clusters. Column 2, lines 1-7. To the extent that the anticipation rejection of claim 2 as originally submitted relied upon a similarity between the center-of-mass concept in claim 2 and the center-of-gravity concept described in Kimura, Applicant submits that there are significant distinctions between Kimura and the limitations of originally submitted claim 2.

Claim 2 recites a design placement process that limits the difference between the center-of-mass of all latched objects as a whole and the center-of-mass of all non-latched objects as a whole. There is nothing either explicit or inherent in Kimura that constrains placement to limit the difference between the center-of-gravity for latched objects and the center of gravity for non-latched objects. Kimura never refers to a center of gravity for non-latched objects. The only reference to non-latched objects in Kimura occurs when Kimura describes the placement of a buffering element within its corresponding cluster. In this regard, the placement of buffering elements, which are analogous to the non-latched elements of claim 2, is totally dictated by the location of the latched elements (flip flops) in the corresponding cluster of elements without regard to the overall center-of-gravity of non-latched objects.

Because the limitations of claim 1 as amended are not taught either explicitly or inherently by the reference, Applicant respectfully requests the Examiner to reconsider and withdraw the anticipation rejection of claim 1 and its dependent claims. Analogous arguments apply to independent claims 7 and 14, which have both been amended to incorporate dependent claim limitations constraining the placement of latched and non-latched objects to limit the difference between the latched object center of mass and the non-latched object center of mass.

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CONCLUSION

In the present response, Applicant has addressed the objections to the claims, and responded to the Examiner's claim rejections under 35 USC § 102(e). Accordingly, Applicant believes that this response constitutes a complete response to each of the issues raised in the office action. In light of the amendments made herein and the accompanying remarks, Applicant believes that the pending claims are in condition for allowance. Accordingly, Applicant would request the Examiner to withdraw the rejections, allow the pending claims, and advance the application to issue. If the Examiner has any questions, comments, or suggestions, the undersigned attorney would welcome and encourage a telephone conference at 512.428.9872.

Respectfully submitted,



Joseph P. Lally
Reg. No. 38,947
ATTORNEY FOR APPLICANT(S)

LALLY & LALLY, L.L.P.
P.O. Box 684749
Austin, Texas 78768-4749
512.428.9870
512.428.9871 (FAX)

JPL/mmum